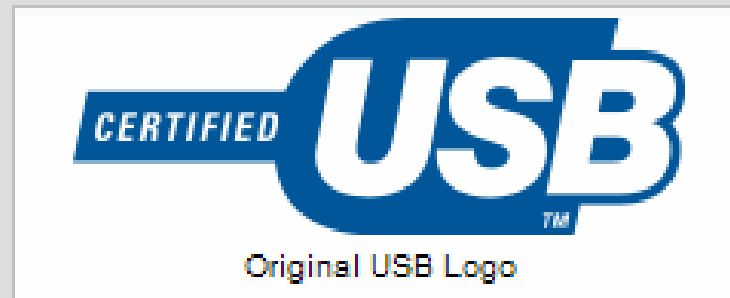


RouterOS and USB Devices



Arnis Riekstins
MikroTik

Supported USB Devices

- USB Peripheral Devices:
 - UPS
 - Ethernet Controllers
 - Flash Disks / Hard Disk Drives
 - HSDPA/EDGE/GPRS (3G) Modems
- USB 2.0 Hosts running RouterOS:
 - Any x86 hardware (PC)
 - RouterBoard 230 (USB 1.1)
 - RouterBoard 433U – new!

UPS Control

- Similar to the “old” style over serial port
- Requires the ups-3.x.npk or ups-2.9.x.npk software package installed



UPS Configuration

The screenshot displays the Mikrotik WinBox UPS configuration interface. The main window, titled 'UPS', contains a table with the following data:

Name	Port	Model	Offline After	Load (%)
ups1	usb1	Back-UPS BR 800 FW:9.o2.1 USB FW:o2		33

Below the table, a sub-window titled 'UPS <ups1>' is open, showing the configuration for the selected device. The sub-window has tabs for 'General', 'Model', and 'Status', with 'General' currently selected. The configuration fields are as follows:

- Name: ups1
- Port: usb1
- Off Line Time: 00:05:00
- Min Run Time: 00:05:00
- Alarm Setting: immediate

On the right side of the sub-window, there are several action buttons: OK, Cancel, Apply, Disable, Copy, Remove, and Beep.

UPS Status

UPS

+ - ✓ ✗ Beep Find

Name	Port	Model	Offline After	Load (%)	On Li...
ups1	usb1	Back-UPS BR 800 FW:9.o2.1 USB FW:o2		33	yes

UPS <ups1>

General Model Status

Transfer Cause:

Run Time Left: 00:15:19

Offline After:

Battery Charge: 100 %

Battery Voltage: 27 V

Line Voltage: 27 V

Output Voltage: 230 V

Load: 33 %

Temperature: 29 C

Frequency: 50 Hz

☒ On Line
☐ On Battery

☐ Replace Battery
☐ Smart Boost
☐ Smart Trim
☐ Overload
☐ Low Battery

OK
Cancel
Apply
Disable
Copy
Remove
Beep

USB Ethernet

- RouterOS Supports:
 - Planet 10/100Base-TX USB Ethernet Adapter UE-9500
 - Linksys Instant EtherFast 10/100 USB Network Adapter USB100TX
- See the Device Driver List in the RouterOS Manual

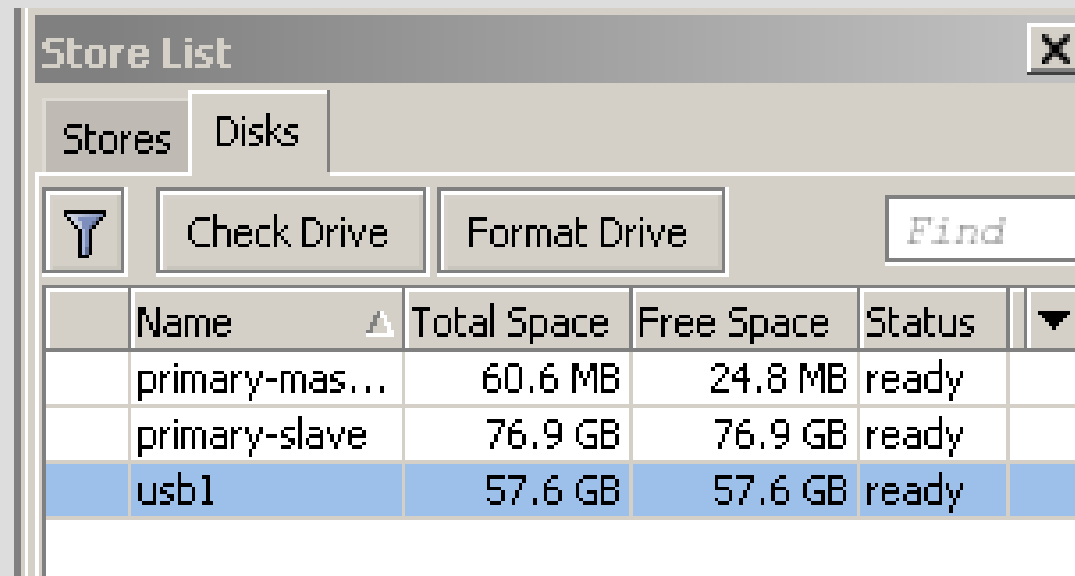


USB Flash Disk

- Booting from Flash, if the hardware supports it
- Storage for proxy cache
- USB storage shows up under the new **/store disk** menu (since ROS V3.15)

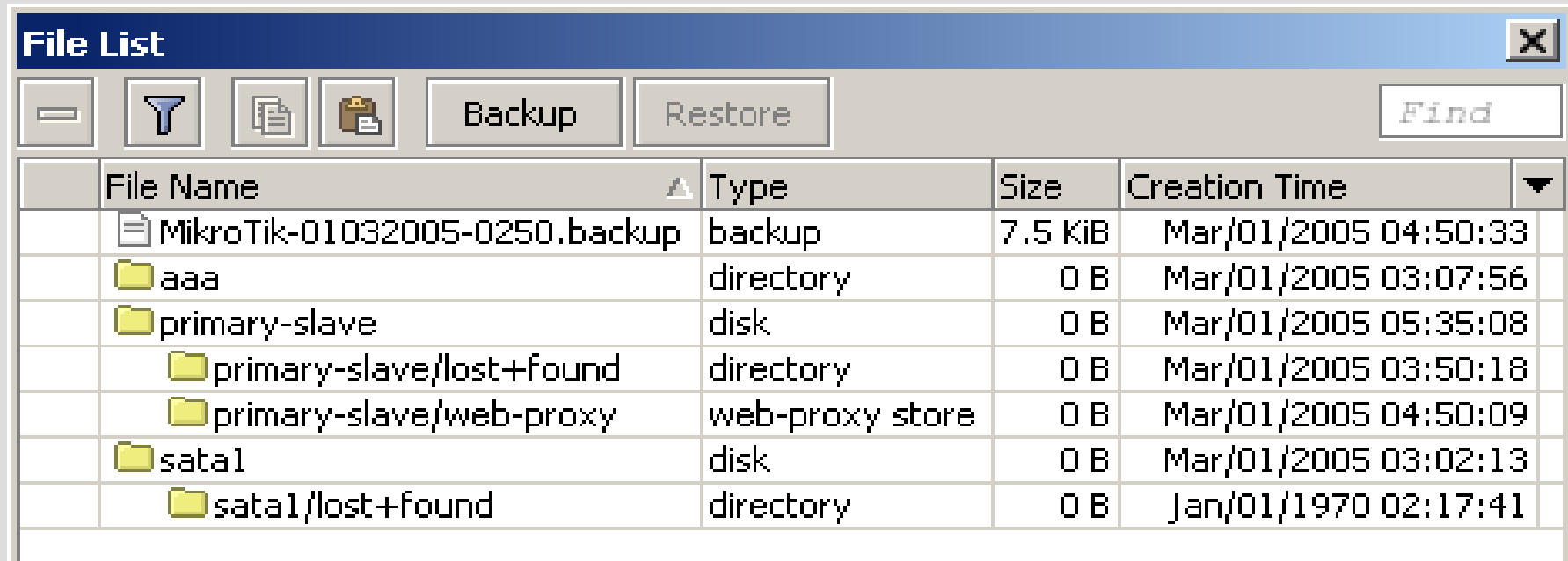


Store Menu



- USB storage shows up under the new **/store disk** menu (since ROS V3.15)

Accessing External Storage



File Name	Type	Size	Creation Time
MikroTik-01032005-0250.backup	backup	7.5 KiB	Mar/01/2005 04:50:33
aaa	directory	0 B	Mar/01/2005 03:07:56
primary-slave	disk	0 B	Mar/01/2005 05:35:08
primary-slave/lost+found	directory	0 B	Mar/01/2005 03:50:18
primary-slave/web-proxy	web-proxy store	0 B	Mar/01/2005 04:50:09
satal	disk	0 B	Mar/01/2005 03:02:13
satal/lost+found	directory	0 B	Jan/01/1970 02:17:41

- USB storage can be accessed through the **/file** menu, where it shows up as a folder
- USB storage can be accessed by ftp

HSDPA/EDGE/GPRS Modems

- HUAWEI E220
- TELTONIKA



GSM Modem Applications

- Main link to the Internet
- Backup link
- Sending SMS from the router (V3.0rc11)
- Receiving SMS on the router and executing scripts (to be implemented)



Main Link over GSM

- Suitable for locations where WiFi or DSL cannot be used:
 - rural areas
 - public transport
 - in your car
 - on your yacht
 - in a hotel with overpriced Internet access



Backup Link over GSM

- In case the main link goes down router can be configured to use data connection over GSM network

Sending SMS over GSM Modem

- Signaling the network status by sending SMS text directly through the GSM network (not to a SMS-to-email gateway)

GSM Modem Applications



Configuring the PPP

Interface <ppp-lmt>

General | **PPP** | Status | Traffic

Name:

Type:

Max MTU:

Max MRU:

MRRU:

Port: ▼

Modem Init: ▲

☐ Null Modem

OK
Cancel
Apply
Enable
Comment
Copy
Remove
Torch

Configuring the PPP (2)

The screenshot shows the 'Interface <ppp-lmt>' configuration window in WinBox. The 'PPP' tab is selected. The 'Phone' field contains '*99***1#'. The 'Dial Command' field contains 'ATDT'. The 'User' and 'Password' fields are empty. The 'Profile' dropdown is set to 'ppp-LMT'. At the bottom, there are three checkboxes: 'Dial On Demand' (unchecked), 'Add Default Route' (checked), and 'Use Peer DNS' (checked). On the right side, there are buttons for 'OK', 'Cancel', 'Apply', 'Enable', 'Comment', 'Copy', 'Remove', and 'Torch'.

Interface	<ppp-lmt>		
General	PPP	Status	Traffic
Phone:	*99***1#		
Dial Command:	ATDT		
User:			
Password:			
Profile:	ppp-LMT		
☐ Dial On Demand			
☒ Add Default Route			
☒ Use Peer DNS			

Buttons: OK, Cancel, Apply, Enable, Comment, Copy, Remove, Torch

Sending SMS from Router

- Command line example to send an SMS:
 - `/tool sms send usb3 "29111222"`
`message="Help!"`
- Additional arguments can be specified:
 - `smc=<number>` is number of the SMS service center
 - `type=<value>` is for adjusting SMS properties. Currently only class 0 SMS messages are supported, thus, `type=class-0` by default
- SMS cannot be sent while the port is used by other service (PPP or terminal)

Troubleshooting GPRS

- Can you talk to the modem at all?
 - Use serial terminal on usb port and try to issue some AT commands (AT, ATI, AT+CPIN=?
- Is the SIM card requiring to enter the PIN?
 - Disable PIN request, or,
 - Include it into the modem initialization string
- Consult
 - Any GPRS AT Command Reference
 - MikroTik WIKI

Thank you!